

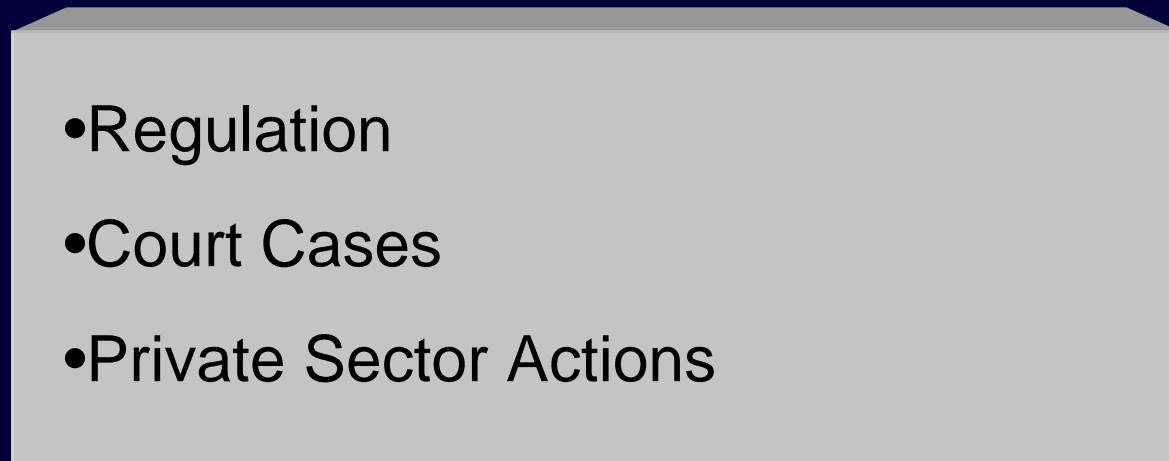
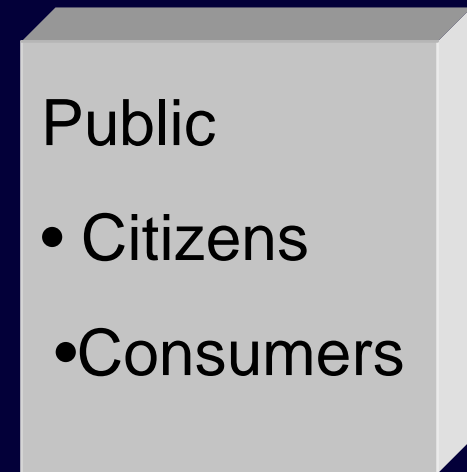
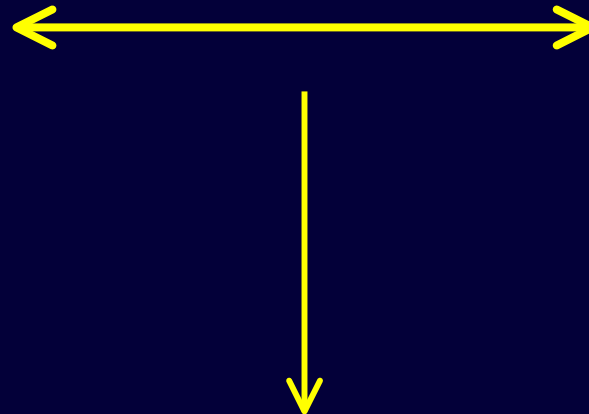
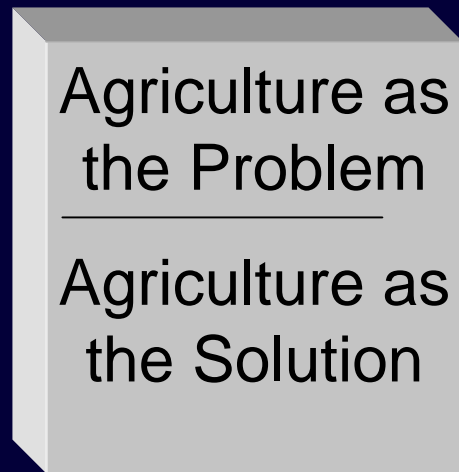
Water Quality Regulation: Challenges for Agriculture

**Sandra S. Batie
Michigan State University**

www.aec.msu.edu/smithchair



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Water Quality: Agriculture as the Problem

- **Salt-Salinity**
- **Pesticides**
- **Suspended Solids**
- **Fertilizer Nutrients**
- **Manure Nutrients and Pathogens**
- **Heavy Metals**
- **Pharmaceuticals**
- **Destructions of Wetlands and Riparian Habitat**
- **Competition for Water**

Water Quality: Agriculture as the Solution

- **Supplies of Beneficial Environmental Attributes (e.g. Open Space and Wildlife Habitat)**
- **Buffers and Riparian Corridors**
- **Preferred to “Development Uses”**
- **Supplies of Organic and “Green” Products**



Public

- **Citizens (US)**
 - Voters
 - Members of NGOs
- **Consumers (US and Abroad)**
 - Food
 - Clothes



Public-Influenced by:

- **Scientific Findings**
- **Own Values and Perceptions**
- **Events**
- **Demand for Environmental Quality & Food Safety & Open Space**
- **Income Elasticity of Demand**

-Results-

- **Public Regulations and Programs- Federal**
 - Farm Bill
 - Clean Water Act
 - CAFO
 - TMDL
 - Point/Nonpoint Trading
 - Food Quality Protection Act
 - Safe Drinking Water Act
- **State and Local Regulations and Programs**
- **“Private Regulations” –**
 - Retailers’ Requirements
 - Industry Environmental Assurance Programs

Impacts



Producers



Regulators



Producers

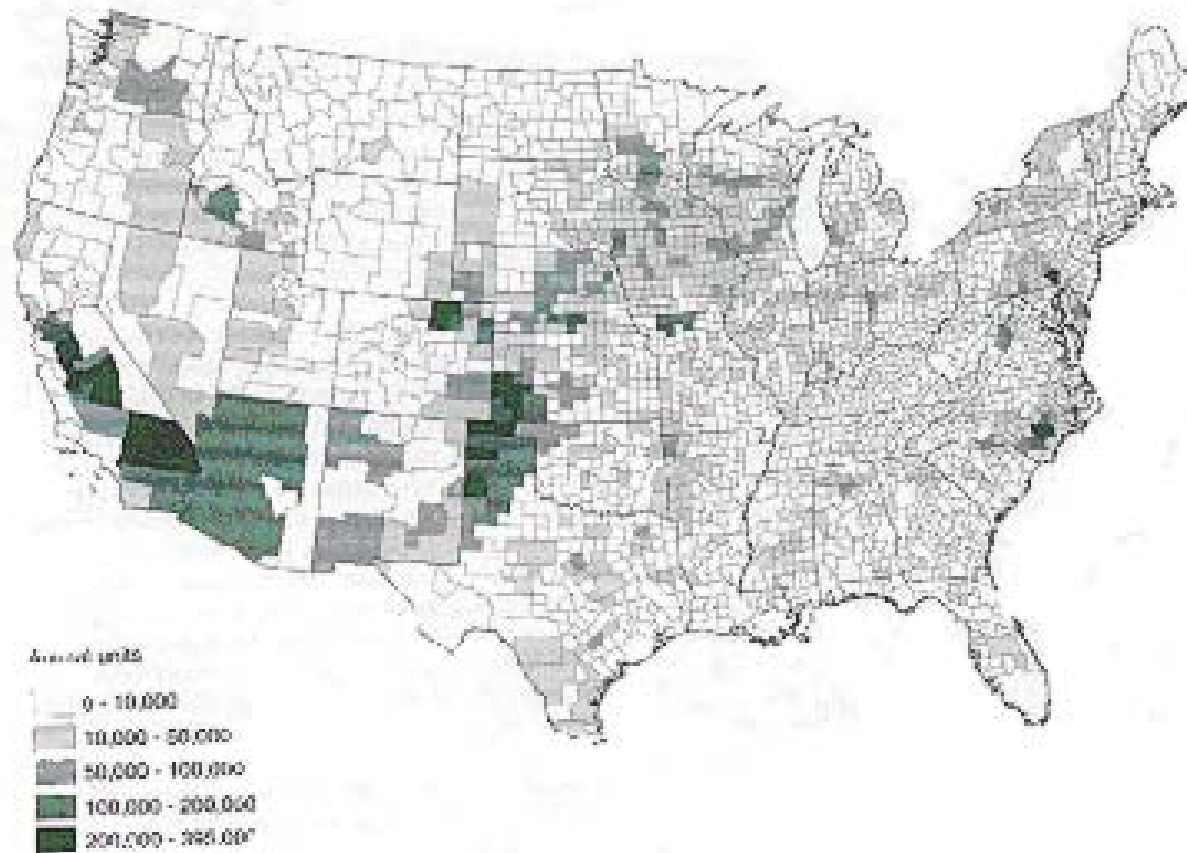
Agricultural producers are relatively unregulated by Federal regulation compared to other water-using industries

To date, for many, challenges remain unremarkable.



Corbis.com

Location of confined animals, 1997



Some counties are combined to meet disclosure criteria.
Source: Economic Research Service, USDA



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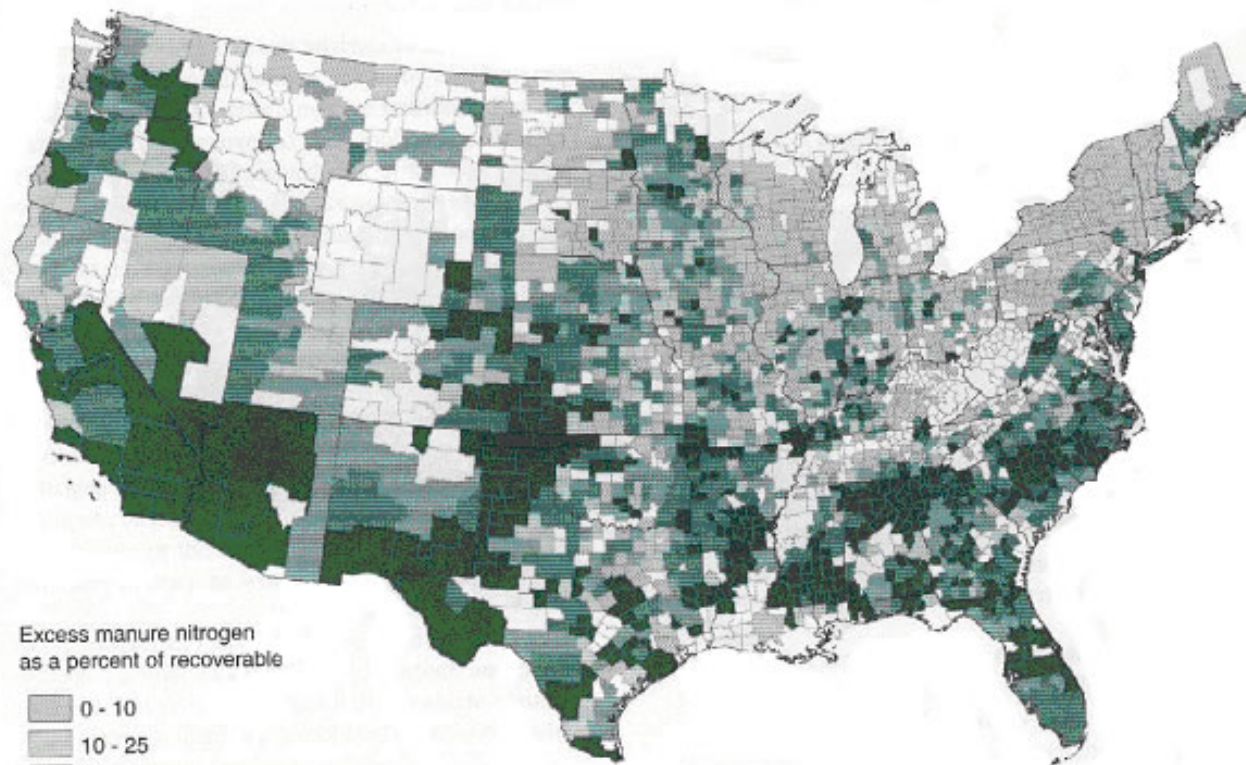
Water quality regulation “action” is at the local and state levels

— -- or is in the private sector ‘s self-regulation and markets

Producers Affected by Water Quality Regulation

- **Bewildering Array of Programs**
- **Economics of Scale**
- **Regional Challenges:**
 - Too much manure, not enough land

Excess onfarm manure nitrogen as a share of recoverable nitrogen, 1997



Some counties are combined to meet disclosure criteria.

Source: Economic Research Service, USDA.



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Most producers also have high level of uncertainty with respect to future regulations of any kind, at any level, that will affect them.

Much of the impact of water quality regulation on producers stems from present or foreseeable state programs

– Regulation

- Voluntary Cost-Share Partnerships (MAEAP)

Water Quality Challenges for Federal Regulations

- **Relationship with State Programs and Industry Trends**
 - Lead, Follow, or Get out of the Way?
 - Industry Environmental Assurance Programs

Water Quality Challenges for Federal Regulators

- **Implementing CAFOs, TMDLs, Wetlands, Trading Programs**
 - Goal Setting, Monitoring, Evaluation, and Enforcement

Standards

1	2	3	4
Design (technology)	Technology based (derived from a technology)	Emission (Residual) (not derived from a technology)	Ambient (not derived from a technology)
1 Conservation Tillage (CT)	Allowable Erosion Rates based on CT	T Values	Allowable Sediment in River

Standards

1

**Design
(technology)**

2

**Technology
based
(derived from a
technology)**

3

**Emission
(Residual)
(not derived from
a technology)**

4

**Ambient
(not derived
from a
technology)**

**2 Water Storage
Facility**

**Adoption of
CNMP**

Zero Discharge

**Allowable
Phosphorus
in Lake**

Standards

1	2	3	4
Design (technology)	Technology based (derived from a technology)	Emission (Residual) (not derived from a technology)	Ambient (not derived from a technology)
3 \$	\$ \$	\$ \$ \$	\$ \$ \$ \$

Standards

1

**Design
(technology)**

2

**Technology
based
(derived from a
technology)**

3

**Emission
(Residual)
(not derived from
a technology)**

4

**Ambient
(not derived
from a
technology)**

**4 Low
Information
Needs; Low
Enforcement
Costs**

**High
Information
Needs
High
Enforcement
Costs**

Water Quality Challenges for Federal Regulators

- **Coordination Between Federal Programs**
 - Mixed Media
 - Investing in Research and Development

Water Quality Regulations: Challenges for Agriculture

- **Constructing a New Regulatory Model**
- **Need for Research**



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